

Application No.: 09/491302

Case No.: 55271US002

REMARKS

Claims 1-4 and 8-19 are pending. Claims 1-4 and 8-19 are rejected. Claims 5-7 and 20-26 have been canceled.

§ 103 Rejections

Claims 1-4 and 8-19 stand rejected under 35 USC § 103(a) as being unpatentable over Schueller et al. (USPAT 5844168, Schueller) in view of Brandt et al. (USPAT 6068782, Brandt).

The Office Action states in part:

With regard to claim 1, Schueller discloses in figures 7 -7b an electronic package. Schueller discloses in figures 7 -7b a conductive trace layer (720b) having a first side and a second side, the conductive trace layer being patterned to define a plurality of interconnect pads. Schueller discloses in figures 7 -7b a dielectric substrate (720a) mounted on the first side of the conductive trace layer. Schueller discloses in figures 7 -7b and column 8, lines 42 -44 an embedded capacitor (bottom layer of 710, top layer of 700, and the bottom layer of 700) having a capacitance including a first conductive layer (bottom layer of 710), a second conductive layer (bottom layer of 700) and a layer of dielectric material (top layer of 700) made of a nonconductive polymer (polyimide, top layer of 700) disposed between the first and the second conductive layers, the first conductive layer attached to the second side of the conductive trace layer by a first adhesive layer (725). It is inherent in the method of Schueller that the bottom layer of 710, top layer of 700, and the bottom layer of 700 form a capacitor because this configuration is the definition of a capacitor. Schueller is silent to teaching a specific capacitance and a dielectric material made of a non-conductive polymer blended with high dielectric constant particles. Brandt teaches in column 4, lines 18-41 and column a suitable dielectric material made of a non-conductive polymer blended with high dielectric particles. Brandt further teaches in column 6, lines 44-60 a capacitor with this dielectric layer having a capacitance of 200 nF/sq.cm (500 pF is equivalent to 50 nF, $(50 \text{ nF})/(0.25 \text{ cm}^2) = 200 \text{ nF/cm}^2$). It would have been obvious to one of ordinary skill in the art at the time of the present invention to use the dielectric material and capacitance of Brandt in the method of Kling in order to tune the electronic properties of a capacitor component as stated by Brandt in column 4, lines 22 -41. It further would have been obvious to one of ordinary skill in the art at the time of the present invention to use a capacitance of from about 1nF/sq.cm to about 100 nF/sq.cm in order to optimize the capacitance, and because Brandt teaches optimization in column 4, lines 37 -41 (also see MPEP 2144.05). Schueller discloses in figures 7 -7b a plurality of interconnect regions (741 and 742) extending through the first conductive layer and the dielectric material layer of the capacitor. Schueller discloses in figures 7 -7b an interconnect member connected between each of the conductive layers of the capacitor and a corresponding set of the interconnect pads, the first conductive layer of the capacitor being electrically connected (750) to a first set of the interconnect pads and the second conductive layer on the capacitor being electrically connected (751) to a second set of the interconnect pads, the interconnect members corresponding to the second set of interconnect pads extending through one of the interconnect regions.

Applicants respectfully submit that according to MPEP 2142, to establish a case of prima facie obviousness, three basic criteria must be met: 1) there must be some suggestion or

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motivation, either in the references or generally known to one skilled in the art, to modify or combine reference teachings, 2) there must be reasonable expectation of success, and 3) prior art references must teach or suggest all the claim limitations. The ability to modify the method of the references is not sufficient. The reference(s) must provide a motivation or reason for making the changes. *Ex parte Chicago Rawhide Manufacturing Co.*, 226 USPQ 438 (PTO Bd. App. 1984).

Applicants respectfully submit that the references cannot support a case of *prima facie* obviousness as to the claims because, among other possible reasons, the cited references do not provide a motivation or suggest for embedding a capacitor having a capacitance of from about 1 nF/sq.cm. to about 100 nF/sq.cm. in the structure of Schueller. Although two metal layers separated by an insulating layer may have nominal capacitance, contrary to the Examiner's statements, nowhere does Schueller indicate that it is using, or seeks to use, its metal and dielectric layers as a capacitor. Instead, Schueller teaches a BGA package in which a stiffener layer is also used as a conductive layer. In some embodiments, TAB tapes are used to form additional conductive layers. Accordingly, there would be no motivation based on the teachings of Schueller to "tune the electrical properties" of the layers in the Schueller article to make them into a capacitor having a capacitance of from about 1 nF/sq.cm. to about 100 nF/sq.cm. The Examiner is taking the teachings of Schueller out of context to argue that the metal layer and dielectric layer of one TAB tape, plus the metal layer of an adjacent TAB tape form a capacitor.

For these reasons, Applicant(s) submit that the cited references will not support a 103(a) rejection of the claims invention and request that the rejection be withdrawn.

In addition to the foregoing arguments, Applicant(s) submit that a dependent claim should be considered allowable when its parent claim is allowed. *In re McCairn*, 1012 USPQ 411 (CCPA 1954). Accordingly, provided the independent claims are allowed, all claims depending therefrom should also be allowed.

Based on the foregoing, it is submitted that the application is in condition for allowance. Withdrawal of the rejections under 35 U.S.C. 103 is requested. Examination and reconsideration of the claims are requested. Allowance of the claims at an early date is solicited.

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The Examiner is invited to contact Applicant(s)' attorney if the Examiner believes any remaining questions or issues could be resolved.

Respectfully submitted,

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Date

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